

REMARKS

Restriction Requirement

Applicants confirm that a telephonic election was made by the undersigned attorney on July 1, 2008 to prosecute Group I which includes claims 1-28 and 39. This election was made with traverse. Applicants request that when the apparatus claims are found allowable, all method claims depending therefrom are taken up for examination through rejoinder procedure in accordance with MPEP §821.04. Consistent with such intent to rejoin, applicants have amended the method claims 29 to 38, notwithstanding the Office's withdrawal of such claims, to present them in form suitable for future examination upon their rejoinder with the allowed elected claims.

Rejection of Claims and Traversal Thereof

In the July 9, 2008 Final Office Action:

Claims 1-28 and 39 were rejected under 35 U.S.C. §112, second paragraph;

Claims 1-4 were rejected under 35 U.S.C. §102(b) as anticipated by Ehsani et al., (US 6,426,109);

Claims 1-2 and 7 were rejected under 35 U.S.C. §102(b) as anticipated by Lidman, (US 4,970,989);

Claims 1-4 and 5 were rejected under 35 U.S.C. §102(b) as anticipated by Holm, (US 4,876,100);

Claims 1-3 were rejected under 35 U.S.C. §102(e) as anticipated by Lindquist (US 6,737,096);

Claim 6 was rejected under 35 U.S.C. §103 (c) as obvious over Ehsani et al., (US 6,426,109); and

Claims 8-12 were rejected under 35 U.S.C. §103 (c) as obvious over Lidman, (US 4,970,989) in view of Ehsani et al., (US 6,426,109).

These rejections are hereby traversed and reconsideration of the patentability of the pending claims is therefore requested in light of the following remarks.

Rejection under 35 U.S.C. §112, second paragraph

Claims 1-28 and 39 were rejected under 35 U.S.C. §112, second paragraph for multiple reasons which will be addressed individually herebelow.

Applicants have amended claim 1 to more clearly define the cross-filtration modules that include filter membranes. Further, claim 1 now include limitations relating to inlet for feed and outlets for retentate and permeate.

According to the Office, claims 13, 14-16 are redundant regarding to the casein separation module. Initially, it should be noted that claims 13 and 14 have different limitations and thus are not the same scope, and as such, even though both claims recite the initial casein separation module they include much different step along the separation pathway. Claims 13 and 14 have been rewritten as independent claims to remove the uncertainty regarding the cross-filtration modules of claim 1. Claims 15 and 16 depend from claims 13 and 14, respectively and because claim 13 is different from claim 14, then applicants believes that claims 15 and 16 are not redundant.

Claims 17 and 18 are cancelled herein.

Applicants suggest that claim 23 is not redundant because it provides a different separation system from either claim 13 or 14 and in light of the present amendment to the claim should be found to be allowable along with all claims depending therefrom.

Claim 39 has been amended to obviate this rejection.

Applicants request, in light of the amendment to the claims, that the Office reconsider these rejections and determine that all claims meet the requirements of section 112, second paragraph.

Rejection under 35 U.S.C. §102(b) or (e)

Claims 1-4 were rejected under 35 U.S.C. §102(b) as anticipated by Ehsani et al., (US 6,426,109). Applicants submit that this reference is not anticipatory of the presently claimed invention.

For a reference to be anticipatory it must disclose each and every element of the claimed invention, **arranged as in the claim.** *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). Ehsani, et al. does not disclose, teach or suggest the presently claimed invention.

Claim 1 recites the following:

1. 1. An apparatus for sequentially separating components of milk, comprising:

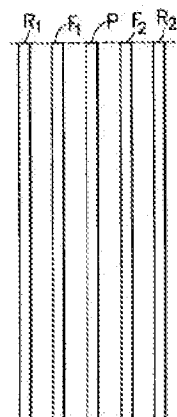
(a) a milk source;

(b) one or more cross-flow filtration modules communicatively connected to said milk source, for generating one or more filtration fractions; wherein the cross-flow filtration modules comprise a feed inlet, a retentate outlet, a permeate outlet, a multiplicity of filter sheets in an operative stacked arrangement, wherein the filter sheets alternate with permeate and retentate sheets, wherein the retentate sheet comprises multiple fluid-flow channels each extending between the feed inlet and retentate outlet, wherein the fluid flow channels are of equal length to one another as measured between the inlet and the outlet, and wherein as a liquid to be filtered flows across the filter sheets, solids or high-molecular-weight species of diameter larger than the filter sheet's pore size, are retained in a retentate flow, and any permeate species diffuse through the filter sheets and enter the permeate sheet and permeate flow;

(c) one or more fluid delivery conduit connected to each of said cross-flow filtration modules to effectuate flow of milk through said cross-flow filtration modules for separation of milk components, wherein the one or more fluid delivery conduit is connected to the feed inlet for flowing fluid into the cross-flow filtration modules; and

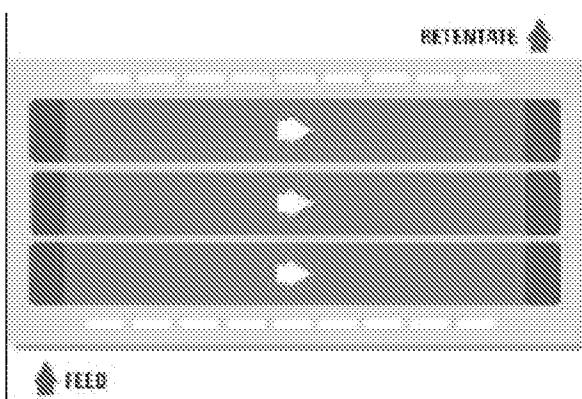
(d) one or more fluid collection conduit downstream of each of said cross-flow filtration modules for sequentially capturing one or more filtration fractions generated by the cross-flow filtration modules, wherein the one or more fluid collection conduit is connected to the retentate outlet and the permeate outlet.

Notably, the presently claimed apparatus provides for cross-flow filtration modules include a stacking of filters and these filters are alternated with permeate sheets and retentate sheets, such as shown below.



The specific arrangement provides for the retentate sheets which are communicatively connected to the feed inlet and retentate outlet and that are part of the sub-channel network to receive the feed flow and feed particles of the appropriate size pass through the filters into the permeate sheet which enters into the permeate collection and discharge arrangement.

Further, the system provides for retentate sheet that comprises multiple fluid-flow sub-channels each extending between the feed inlet and retentate outlet that are of equal length to one another as measured between the inlet and the outlet as shown below.



It is very evident that the no matter which channel the fluid enters it will travel the same distance from the inlet to the retentate outlet. More important the velocity is maintain and is consistent through each channel which equalizes flow across the entire membrane surface. This precise, uniform flow translates into 100% membrane utilization under uniform conditions, resulting in higher permeate rates, increased process yield, and consistent repeatable results.

It should be noted that the Ehsani reference does not disclose such a system, and as such, does not defeat the patentability of the presently claimed invention. Applicants request that this rejection under 102 be withdrawn.

Claims 1-2 and 7 were rejected under 35 U.S.C. §102(b) as anticipated by Lidman, (US 4,970,989). Applicants submit that the Lidman reference does not disclose the use of a cross-flow filtration system and certainly does not disclose the retentate flow system as described in the presently claimed invention. As such, Lidman is not an anticipatory reference and applicants request the withdrawal of this rejection.

Claims 1-4 and 5 were rejected under 35 U.S.C. §102(b) as anticipated by Holm, (US 4,876,100). Holms suffers from the same shortcomings as Lidman, and as such, is not an anticipatory reference and applicants request the withdrawal of this rejection.

Claims 1-3 were rejected under 35 U.S.C. §102(e) as anticipated by Lindquist (US 6,737,096). Applicants insist that the Lindquist does not disclose the use of a cross-flow filtration system that comprises the retentate flow system as described in the presently claimed invention. As such, Lindquist is not an anticipatory reference and applicants request the withdrawal of this rejection.

Rejection under 35 U.S.C. §103 (c)

Claim 6 was rejected under 35 U.S.C. §103 (c) as obvious over Ehsani et al., (US 6,426,109). Applicants submit that the Ehsani reference does not in any way teach or suggest the presently claimed invention. As stated above, the Ehsani discuss the broad general use of cross-flow filtration but certainly does not disclose the presently claimed system having a specific arrangement of filter membranes, retentate and permeate sheets. Further, there is no indication in this reference relating to the retentate sheet. Even after *KSR*, there is some need to provide a teaching or suggestion of the presently claimed system, as shown in the cited reference.

Claims 8-12 were rejected under 35 U.S.C. §103 (c) as obvious over Lidman, (US 4,970,989) in view of Ehsani et al. However, this proposed combination still does not in any way teach or suggest the presently claimed invention. Again as shown above, the system of applicants' provides for a specific set of filters. More important, the retentate sheet provides for channels having a cross-section which is substantially identical to the transverse cross section of the retentate channels. Consequently, the applicants' claimed invention permits control of the velocity of the input liquid across the entire surface of the membrane. None of the cited prior art provides such a teaching or advantage.

In light of the foregoing discussion and the fact that all of claimed limitations are not disclose or suggested by the cited combination, the Office has not met its burden of establishing a *prima facie* case of obviousness. As such, applicants request the withdrawal of this rejection under section 103.

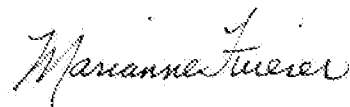
Petition for Extension and Fees Payable

Applicants petition for a one month extension to extend the response due date of October 9, 2008 to November 9, 2008 and the petition fee of \$60.00 is being paid herewith by electronic transfer. Further applicants have added three new independent claims but cancelled four, and as such, no fee is due. If any additional fee is found due for entry of this amendment, the Commissioner is authorized to charge such fee to Deposit Account No. 13-4365 of Moore & Van Allen.

Conclusion

Applicants have satisfied the requirements for patentability. All pending claims are free of the art and fully comply with the requirements of 35 U.S.C. §112. It therefore is requested that Examiner Fortuna reconsider the patentability of the pending claims in light of the distinguishing remarks herein, and withdraw all rejections, thereby placing the application in condition for allowance. If any issues remain outstanding incident to the allowance of the application, Examiner Fortuna is requested to contact the undersigned attorney at (919) 286-8089.

Respectfully submitted,



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